

REMARKS

The Office Action dated September 10, 2007 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 6, 14-21 and 27-39 have been amended to more particularly point out and distinctly claim the subject matter which is the invention. Claims 40-44 have been added. No new matter has been added. Claims 6-21 and 27-44 are submitted for consideration.

Claims 6-21 and 27-39 were rejected were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Publication No. 2002/0009974 to (hereinafter Kuwahara). The rejection is traversed as being based on a reference that neither teaches nor suggests the novel combination of features clearly recited in claims 6-21 and 27-39 and newly added claims 40-44.

Claim 6, upon which claims 7-13 and 36 depend, recites a method including receiving, in a base station, a time reference signal providing time reference in the telecommunication system and generating an idle period in the transmission of a base station. The method also includes determining, in the base station, time characteristics of the idle period relative to the time reference by means of a power measurement and providing at least a portion of data to be transmitted from the base station with time characteristics proportional to the time reference by using time characteristics of the idle period.

Claim 14, upon which claims 15-21 and 37 depend, recites a system including a base station for providing radio transmission and reception for mobile stations. The base station includes a time reference signal receiver configured to receive a time reference signal providing time reference in the telecommunication system and an idle period generator configured to generate an idle period in the transmission of the base station. The base station also includes a detector operationally connected to the idle period generator and the time reference signal receiver configured to determine time characteristics of the idle period relative to the time reference by means of a power measurement. The base station further includes a time stamper operationally connected to the detector configured to provide at least a portion of data to be transmitted from the base station with the time characteristics proportional to the time reference by using the time characteristics of the idle period.

Claim 27, upon which claims 28-34 and 38 depend, recites an apparatus including receiving means for receiving, in a base station, a time reference signal providing time reference in the telecommunication system and generating means for generating an idle period in the transmission of a base station. The mechanism also includes determining means for determining, in the base station, time characteristics of the idle period relative to the time reference by means of a power measurement and providing means for providing at least a portion of data to be transmitted from the base station with time characteristics proportional to the time reference by using time characteristics of the idle period.

Claim 35, upon which claim 39 and 40-44 depend, recites an apparatus including a time referencing signal receiver configured to receive a time reference signal providing time reference in the telecommunication system and an idle period generator configured to generate an idle period in the transmission of the base station. The base station also includes a detector operationally connected to the idle period generator and the time reference signal receiver, the detector configured to determine time characteristic of the idle period relative to the time reference by means of a power measurement and a time stamping unit operationally connected to the detecting unit and configured to provide at least a portion of data to be transmitted from the base station with the time characteristics proportional to the time reference by using the time characteristic of the idle period.

As outlined below, the cited reference of Kuwahara does not teach or suggest the all of the elements of the pending claims.

Kuwahara discloses a wireless communication base station transmission timing offset correction system including an accurate time reception antenna 13, which receives a signal including at least one accurate time value and outputs the accurate value at reception of the signal transmitted from the wireless base station. The system further includes a cellular antenna 16 that receives the signal transmitted from the base station antenna and outputs a reception time value of the signal transmitted from a wireless base station antenna 10. See paragraph 0013 of Kuwahara. Figure 3 and paragraph 0034 of Kuwahara also discloses that transmission timing measurement apparatus 20, 21, 22 includes a GPS antenna 13 and a cellular antenna 16. The GPS receiver 14 determines the

geographic position at which the transmission timing measurement apparatus 21 is located, and the exact time of the signals received by the GPS antenna 13 from the GPS satellites 1, 2, 3, and generates a reference GPS clock signal. The cellular communication unit 23 receives a signal transmitted from a base station antenna 10 via the cellular antenna 16, and measures the reception timing of the pilot signal of the corresponding base station 5, 6, 7. The measurement of the pilot signal may include, for example, the use of a sliding correlator matched with the pilot signal transmitted by the base station 5, 6, 7, to thereby measure the timing of signal reception from the phase in which correlation becomes more significant.

Paragraph 0029 of Kuwahara also discloses that cable delays occur when a signal is inputted from the GPS antenna 13, or the cellular antenna 16, to the respective receiver 14, 17. Cable delays may also occur within the receiver, or over the connection between the receiver 14, 17 and the reference clock generator 15. However, for a position measurement, no error in terminal position measurement will occur if the relative reception timing difference of the signal transmitted from each base station, i.e. time difference of arrival (TDOA), is accurately calculated. Therefore, any additional error due to unforeseen cable delays or the like is reduced or eliminated through the use of a transmission timing measurement apparatus 18 of an equivalent cable length and having equivalent component delays. Kuwahara further disclose that a reception timing measurement apparatus 24, such as a reference clock generator 15, measures, on the basis of the accurate clock obtained by the GPS receiver 14, the comparative accuracy of the

reception timing of the pilot signal as determined by the comparison of the cellular communication unit 23 and the GPS receiver 14. See paragraph 0035 of Kuwahara.

Applicant submits that Kuwahara fails to teach or suggest each of the elements of the presently pending claims. Kuwahara fails to disclose the idle period and the power measurement of the idle period when determining time characteristics of the idle period relative to the time reference, as recited in the pending claims. Furthermore, Kuwahara fails to disclose that at least a portion of data to be transmitted from the base station is provided with time characteristics proportional to the time reference by using time characteristics of the idle period, as recited in the pending claims.

As noted in the Office Action, in Kuwahara, a system clock (that is transmission) of a given base station is either advanced or delayed depending on the deviations between the system clock of the base station and the reference clock of the GPS. See at least paragraph 0028 of Kuwahara. The delaying and advancing is carried out by repetition of a small adjustment in every frame. The Office Action refers to this section of Kuwahara when considering the idle period, as recited in the pending claims.

Applicant submits that advancing or delaying transmission of the base station is not equivalent to generating an idle period, as recited in the pending claims. The Office Action seems to assume that delaying a transmission generates an idle period between consecutive frames. This is not a valid assumption because, with the same reasoning,

advancing the transmission would result in overlapping of consecutive frames, which would cause severe problems in the transmission.

Nevertheless, even considering the assumption that this type of unintended idle periods between frames would appear, which it does not, Kuwahara does not utilize these idle periods in any way. In contrast, the present invention, utilizes idle periods, which have been generated for a specific purpose (and are not just an unintended phenomenon), for time stamping. In the present invention, the idle period is transmitted with a different power level than non-idle periods and, therefore, a certain portion of the idle period may be time stamped by means of power measurement of a transmission signal in a base station. Then, data to be transmitted from the base station may be bound to this time stamp determined through the power measurement. In other words, the present invention does not describe that the transmission of the base station as being synchronized with the reference clock, but the reference clock is simply used for obtaining a time reference for the time stamp. Accordingly, the present invention may be utilized in both synchronous and asynchronous communication systems.

Based on the distinctions outlined above, Applicant respectfully asserts that the rejection under 35 U.S.C. §102(b) should be withdrawn because Kuwahara does not teach or suggest each feature of claims 6, 14, 27 and 35. Applicant submits that because claims 7-13, 15-21, 28-34 and 36-39 depend from claims 6, 14, 27 and 35, claims 7-13, 15-21, 28-34 and 36-39 are allowable at least for the same reasons as claims 6, 14, 27


and 35 as well as for the additional features recited in claims 7-13, 15-21, 28-34 and 36-39.

As noted previously, claims 6-21 and 27-44 recite subject matter which is neither disclosed nor suggested in the prior art references cited in the Office Action. It is therefore respectfully requested that all of claims 6-21 and 27-44 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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